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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/881,104 | 06/15/2001 | Kiril A. Pandelisev | PHOENIX SCIENTIFIC | 7265 |

7590 06/07/2004

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| EXAMINER |
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GAGLIARDI, ALBERT J

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| ART UNIT | PAPER NUMBER |
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2878

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/881,104

Applicant(s)

PANDELISEV, KIRIL A.

Examiner

Albert J. Gagliardi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 and 04 February 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-177 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-8, 10-12, 15, 23-32, 34-41, 43-45, 48, 55-63, 65, 66, 133-161, 167, 168, 170-175 and 177 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☒ Claim(s) See Continuation Sheet are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 15 June 2001 and 16 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims subject to restriction and/or election requirement are 9,13,14,16-22,33,42,46-54,64,67-147 and 154-177.

DETAILED ACTION

Comment on Submission

1. The responses filed 3 February and 4 February 2004 have been entered.
2. The examiner notes that contrary to applicant's understanding, the Office Action dated 3 October 2003 was not non-final, as was clearly noted, in **BOLD PRINT** in numbered paragraph 21 of the Office Action. However, in order to avoid prejudice to applicant, and to further the office's goal of improved customer relations, the examiner has been required to issue a new office action. This action is **FINAL**.

Election/Restrictions

3. Claims 13, 14, 16-22, 33, 42, 46-54, 64, 67-132, 133-147 and 154-177 were previously withdrawn from consideration as being drawn to non-elected species.

Drawings

4. The examiner reiterates that the drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the methods and apparatus suggested by recently presented claims 133-177 (though not considered) must be must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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5. The examiner notes that the proposed drawings changes filed 16 June 2003 have been approved to the extent they do not conflict with the above objection and that corrected drawings are required in reply to this Office Action.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 133-150, 152-161, 167-168, 170-175 and 177 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The added material which is not supported by the original disclosure is as follows: new claims 133-148, 153-161, 168, 172-175 and 177 directed to methods of using embodiments of the invention in combination with other methods or apparatus; new claims 149-150, 152 and 167 directed to new properties of an optical coupler; new claim 170 directed to the use of an amplifier; and new claim 171 directed to the use of radiation sources.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 3-4, 55-63, 148, and 151-152 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Regarding claim 3, the limitation “that the fibers are long for reducing dark current” is indefinite. The examiner notes that the term “long” is a relative term which renders the claim indefinite. The term “long” is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The length of the fibers necessary to reduce dark current is rendered indefinite.

Regarding claims 4 and 148, the limitation that the “scintillator is ruggedized for use far below an earth surface” is indefinite. The examiner notes that it is unclear what, if any, limitations are imposed on the scintillator such that it is “ruggedized” for use far below an earth surface. The examiner further notes that the term “far” is a relative term which also renders the claim indefinite. The term “far” is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The configuration of the scintillator is rendered indefinite.

Regarding claim 55-63, claim 55 recites the limitation “the single or multiple optical fibers” in line 5. There is insufficient antecedent basis for this limitation in the claim. Claims 56-63 are rejected on the basis of their dependency. The examiner notes that no art rejections are being made on the claims because the basis for such rejections would be unclear.

Regarding claim 151-152, claim 151 recites the limitation wherein “a space between the detectors is filled” There is insufficient antecedent basis for a limitation of a detector in the claim. Claim 152 is rejected on the basis of its dependency. The examiner notes that no art rejections are being made on the claims because the basis for such rejections would be unclear.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-6, 10-12, 34-39, 43-45, 65-66, 148 and 153 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed (US 5,313,065) in view of Attix (US 5,006,714)

Regarding claim 1, *Reed* discloses a fiber optic enhanced scintillator apparatus (Figs. 1-4) comprising a scintillator body (20), surfaces on the body for directing photons toward a photon output (45) for receiving and conducting the photons produced by the scintillator; and an elongated light conducting optical fiber (40) with a proximal end connected to the photon output (45).

Reed does not specifically disclose that the light conducting means is formed from a plurality of fibers.

Regarding the plurality of fibers, it is well known and considered as a functionally equivalent alternate design choice to substitute multiple fibers for a single fiber (see for example *Attix* at col. 3, lines 64-65). Therefore, absent some degree of criticality, the use of a plurality of distinct optical fibers would have been an obvious (if not inherent) design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claim 2, *Reed* discloses a photon detector (15) connected to the distal end of the optical fibers (modification suggested by *Attix*).

Regarding claim 3, as best understood, *Reed* discloses that the optical fibers may be long (see generally Fig. 1).

Regarding claim 4, as best understood, in the apparatus disclosed by *Reed*, the scintillator is ruggedized for use far below an earth surface (inherent in view of its location) wherein the optical fibers extend from the scintillator far below the earth's surface to the detector mounted above the earth's surface (see generally Fig. 1; col. 1, lines 40-55).

Regarding claims 5 and 6, although not specifically disclosed by *Reed*, the use of optical couplings, including micro lenses, are well known. Those skilled in the art appreciate that such couplings can allow easier coupling of optical components as well as improved signal transmission. Therefore, depending on the needs of the particular application, it would have been obvious to a person of ordinary skill in the art to modify the apparatus to further include an optical coupling, including a microlens and/or microlens array, between the scintillator body and the output to allow for easier coupling of the components and improved signal transmission.

Regarding claims 10, 11 and 12, although *Reed* does not specifically disclosed the use of an electronic cooler, magnetic shielding, or electromagnetic shielding connected to the detector, those skilled in the art appreciate that the use of such coolers and shielding are well known for use in improving detector sensitivity and reducing unwanted signal noise. Therefore, depending on the needs of the particular application, it would have been obvious to a person of ordinary skill in the art to modify the apparatus to further include an electronic cooler and shielding to allow for improved detector sensitivity and reduced signal noise.

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Regarding claims 34-39, 43-45, and 65-66, the fiber optic enhanced scintillator method recited according to claims 34-39 is suggested by the apparatus suggested by *Reed, and Attix* as applied to claims 1-6 and 10-12 above and is rejected accordingly.

Regarding claims 148 and 153, *Reed suggests* that the scintillator is ruggedized with fibers leading to a detector (see explanation regarding claims 4 and 2 above). *Reed* further suggests that the detector is mounted at a location wherein the effects of mechanical shock and temperature (i.e., non-hostile locations) are minimized (col. 1, lines 26-30). Although *Reed* does not specifically disclose that the detector is located below the earth's surface, absent some degree of criticality, such particular location would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

12. Claims 7-8, 40-41 and 149-150 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Reed* and *Attix* as applied above, and further in view of Bourdinaud *et al.* (US 5,103,099).

Regarding claim 7, *Reed* does not specifically suggest the use of a second optical coupler connected to the scintillator body remote from the first optical coupler, and a second array of microlenses in the optical coupler for directing photons from a second part of the scintillator body to a second output and further comprising second optical fibers connected to the second output.

Regarding the use of a second optical coupler connected to the scintillator body remote from the first optical coupler, and a second array of microlenses in the optical coupler for directing photons from a second part of the scintillator body to a second output and further comprising second optical fibers connected to the second output *Bourdinaud* discloses a fiber

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optic enhanced scintillator apparatus wherein a single scintillator body (8) may in functionally equivalent alternative arrangements include a one or more sets of optical fibers (4, 46) optically coupled to the scintillator body at areas remote from each other (compare Figs. 1 and 4). Therefore, absent some degree of criticality, it would have been an obvious design choice within the skill of a person of ordinary skill in the art to modify the apparatus suggested by *Reed* to further include the use of a second optical coupler connected to the scintillator body in view of the known functionally equivalent arrangements suggested by *Bourdinaud*. The use of microlenses would have been a matter of routine design choice (see explanation regarding claim 6 above).

Regarding claim 8, as best understood, *Reed* discloses that optical fibers may be connected to a single detector (15).

Regarding claims 40-41, the fiber optic enhanced scintillator method recited according to claims 40-41 is suggested by the apparatus suggested by *Reed*, *Attix*, and *Bourdinaud* as applied to claims 7-8 above and is rejected accordingly.

Regarding claims 149-150, regarding the use of an optical coupler that can modify the light wavelength emitted by the scintillator, the use of wavelength shifting material for optimizing the wavelength emitted from a scintillator so as to better match the waveguide or photosensor are well-known and would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the application.

13. Claims 15 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Reed*, *Attix* and *Bourdinaud*, and further in view of *Meisner et al.* (US 4,904,865).

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Regarding claim 15, *Reed*, *Attix* and *Bourdinaud* (see explanation regarding claim 7 above) suggest the apparatus includes a second output and first and second optical couplers. *Reed*, *Attix* and *Bourdinaud* do not specifically suggest that the coupler bodies are elastomeric. Regarding the use of an elastomeric coupling, *Meisner* discloses (Fig. 4) a scintillator apparatus for use in below ground applications including a scintillator body (160) and an elastomeric optical coupler (164), which additionally functions as a shock absorber (col. 6, lines 26-27). Therefore it would have been obvious to a person of ordinary skill in the art to modify the apparatus suggested by *Reed*, *Attix* and *Bourdinaud* so as to utilize elastomeric couplings in order to reduce the potential for damage caused by shock.

Regarding claim 48, the fiber optic enhanced scintillator method recited according to claim 48 is suggested by the apparatus suggested by *Reed*, *Attix*, *Bourdinaud* and *Meisner* as applied to claim 15 above and is rejected accordingly.

14. Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Reed* and *Attix* and further in view of *Inaba et al.* (US 5,331,961).

Regarding claim 23, *Reed* discloses that the scintillator body (20) may comprise at least one additional individual scintillator body (i.e., plural channels) wherein each additional body is comprised of scintillator material, surfaces for directing photons toward a photon output for receiving and conduction the photons produced by the scintillator, and a holder (30) for holding the scintillator bodies in an array (col. 2, lines 59-62).

The examiner notes that while *Reed* does not disclose that each of the additional scintillator bodies includes light conducting optical fibers optically coupled to the photon output (*Reed* discloses a unique arrangement wherein a single fiber bundle is optically coupled, either

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directly or indirectly, to all of the scintillator bodies, those skilled in the art appreciate that a variety of functionally equivalent means for directing light from a scintillator are well known in the art including means wherein each of a plurality of scintillator bodies (4, 5) includes its own set of optical fibers (6, 7) optically coupled to the photon output of the scintillator body (see for example *Inaba* at Fig. 1). Therefore, absent some degree of criticality, it would have been an obvious design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application to modify the arrangement disclosed by *Reed* such that each of the additionally scintillator bodies includes a sets of optical fibers coupled to the scintillator bodies in view of the known functional equivalence thereof for directing photons from a scintillator body.

Regarding claim 24, although *Reed*, *Attix* and *Inaba* do not specifically suggest the use of microlenses connected to each scintillator body for coupling photons from the body to the proximal ends of the optical ends of the optical fibers, the use of microlenses are well known (see explanation regarding claim 6 above) and would have been an obvious design choice.

15. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Reed*, *Attix* and *Inaba* as applied above, and further in view of *Kaufman et al.* (US 2002/00870079 A1).

Regarding claims 25 and 26, although *Reed*, *Attix* and *Inaba* do not specifically disclose that the holder is flexible and resilient, *Reed* does disclose that the design of the probe body can be tailored to the particular monitoring scenario. Resilient and flexible holders are well known. *Kaufman*, for example, discloses (Fig. 1) a scintillation detector including a plurality of scintillation bodies (28) housed in a flexible and resilient holder (22). *Kaufman* teaches that such an arrangement allows for flexibility and easier introduction of the detector to the desired

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location (pars. 31, 35). Therefore, depending on the needs of the particular application, it would have been obvious to a person of ordinary skill in the art to utilize a holder that is flexible and resilient so as to allow for easier introduction of the of the detector at the desired location.

Regarding claim 27, in the apparatus suggested by *Reed*, *Attix*, *Inaba* and *Kaufman* (see explanation regarding claims 25-26 above), the holder is elongated and flexible and the plural scintillator bodies are arranged axially in the holder.

16. Claims 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Reed*, *Attix*, *Inaba* and *Kaufman* as applied above, and further in view of *Bourdinaud*.

Regarding claim 28, *Bourdinaud* (see explanation regarding claim 7 above) discloses a functionally equivalent alternative coupling arrangement using a plurality of optical couplers provided on the sides of the scintillator bodies (see generally Figs. 2-6).

Regarding claim 29, absent some degree of criticality, the particular cross-section of the optical coupler is viewed as a matter of routine design choice depending on the needs of the particular application and further depending on the shape of the scintillator body which is also a matter of routine design choice (see explanation regarding claim 31 below).

Regarding claim 30, in the apparatus suggested by *Reed*, *Attix*, *Inaba*, *Kaufman* and *Bourdinaud* (see explanation regarding claims 23 and 28 above), *Reed* suggests that the plurality of scintillators are angularly related to an axial direction (apparently a 0 ° angle) of the holder (30) and wherein the optical fibers are connected to at least one lateral edge of the scintillator (suggestion of *Bourdinaud*).

Regarding claim 31, *Reed* discloses that the choice of the particular cross-section of the scintillator bodies depends on the needs of the particular application (col. 2, lines 63-65). Those

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skilled in the art appreciate that a wide variety of cross-sectional shapes, particularly round, square and rectangular, are well known and, absent some degree of criticality, would have been an matter of routine design choice depending on the needs of the particular application.

Regarding claim 32, *Bourdinaud* (see explanation regarding claim 28 above), *Bourdinaud* discloses that the optical fibers may include first and second groups of optical fibers connected on opposite side edges of the scintillator bodies (see generally Fig. 4).

Response to Arguments

17. Applicant's arguments with respect to the claims have been have been fully considered but they are not persuasive.

18. Regarding applicant's arguments that Reed does not have the structure as described in the claims, the examiner notes that in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The examiner also notes that applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. The examiner notes that while applicant has identified several features which applicant believes are not shown in Reed, it is not clear whether or not such features are actually claimed, and if they are claimed, which claims are being referred to.

19. Regarding applicant's argument that there is no motivation for combining Reed and Attix, the examiner notes that Attix is used merely for the teaching that the use of either a single

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fiber for a plurality of fibers is well known as a functionally equivalent alternative arrangement. An express suggestion to substitute one equivalent component or process for another is not necessary to render such a substitution obvious. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). See MPEP 2144.06.

20. Regarding applicant's argument regarding the well known use of a plurality of fibers (4th par. under page 6), *Attix* has already been cited; regarding the well known use of couplers and microlenses (page 6, second par.), the examiner refers to *Conde et al.* (US 6,453,090 B1) and *Terada et al.* (US 5,434,415); regarding the well known use of optical fibers and scintillator bodies (page 9, last partial par.), *Inaba* has already been cited.

21. In response to applicant's argument that the combination of *Reed* and *Bourdinaud* (numbered paragraph 10) is improper, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the *Bourdinaud* reference is properly used for the teaching of known, functionally equivalent, alternative means for optically coupling light from a scintillator body. As for specific motivation, the examiner notes that an express suggestion to substitute one equivalent component or process for another is not necessary to render such a substitution obvious. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). See MPEP 2144.06. The examiner notes that the fluorescent fibers described in *Bourdinaud* does not constitute a teaching away from the

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present invention because the reference is used for the teaching of optical coupling to a scintillator body, not for the use of specific fibers.

22. In response to applicant's argument that the combination of *Reed* and *Meisner* (numbered paragraph 11) is improper, the examiner reiterates that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the *Meisner* reference is used for the teaching that it is known in the art to utilize optical couplings with elastomeric properties for coupling light from a scintillator body located in a hostile environment. The examiner notes that the location of the photomultiplier tube as described by *Meisner* does not constitute a teaching away from the present invention because the reference is used for the teaching of elastomeric materials for optical coupling, not for specific locations of a photomultiplier tube.

23. In response to applicant's argument that the combination of *Reed* and *Inaba* (numbered paragraph 12) is improper, the examiner reiterates that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the *Inaba* reference is used for the teaching that it is known in the art to utilize a variety of functionally equivalent arrangements for directing light from a scintillator

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to an optical fiber. As for specific motivation, the examiner notes that an express suggestion to substitute one equivalent component or process for another is not necessary to render such a substitution obvious. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). See MPEP 2144.06.

24. In response to applicant's argument that the combination of *Reed* and *Kaufman* (numbered paragraph 13) is improper, the examiner reiterates that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the *Kaufman* reference is used for the teaching that it is known in the art to utilize a variety of holder type arrangements, including flexible arrangement, depending on the need of the application. The examiner notes that the purported use of the apparatus as described by *Kaufman* does not constitute a teaching away from the present invention because the reference is used for the teaching of flexible holders, not for a purported use.

25. With regard to applicant's arguments regarding numbered paragraphs 16-19, the examiner refers applicant to the above noted responses. The examiner also notes that, where necessary, proper motivation for all combinations has been included. In other cases, where a variety of well-known functionally equivalent arrangements are shown to be known in the art, the examiner reiterates that no specific motivation needs to be shown since the prior art has already taught that the arrangements are interchangeable. The examiner also notes that while

many of the limitations recited in the claims are directed to well known elements (optical couplers, lenses) or features (flexibility, shock resistance), applicant has not attempted to show any criticality (i.e., unexpected results) regarding the use of such elements or features. Absent some degree of criticality, the examiner notes that the use of the elements (optical couplers, for example) for their well-known purpose (i.e., optical coupling) would have been obvious to a person of ordinary skill in the art.

Regarding applicant's supplemental argument that *Attix* is non-analogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, *Attix* is directed to the same field of endeavor as applicant's invention (radiation detection) and is also pertinent to the particular problem with which the applicant is concerned (the use of optical fibers for the transmission of light generated by a scintillator type radiation detector).

Conclusion

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

27. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after


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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert J. Gagliardi whose telephone number is (571) 272-2436. The examiner can normally be reached on Monday thru Friday from 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

29. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Albert J. Gagliardi
Primary Examiner
Art Unit 2878

AJG